

NSG-241US

Appln. No.: 10/516,398  
Amendment Dated May 24, 2006  
Reply to Office Action of January 24, 2006

**Amendments to the Claims:** This listing of claims will replace all prior versions, and listings, of claims in the application

**Listing of Claims:**

1. (Currently Amended) A ground wave reception antenna unit, comprising:  
a planar antenna comprising a first surface on a first side of said planar antenna,  
said first surface for receiving a vertically polarized wave propagating in a horizontal direction,  
said antenna being positioned inclining from a vertical direction; and  
a reflector spaced from said planar antenna and positioned in at least one of a  
horizontal direction or inclining from the horizontal direction by a predetermined angle, and  
said reflector being spaced from said first side of said planar antenna by a predetermined  
distance.
2. (Original) The ground wave reception antenna unit according to claim 1,  
wherein said reflector is positioned in close proximity to said planar antenna.
3. (Previously Presented) The ground wave reception antenna unit according to  
claim 1, wherein a distance between said planar antenna and said reflector is an integer  
multiple of  $0.5\lambda$ ,  $\lambda$  being a wave length of the ground wave received by said planar antenna.
4. (Original) The ground wave reception antenna unit according to claim 1,  
wherein said predetermined angle is  $0-30^\circ$ .
5. (Previously Presented) The ground wave reception antenna unit according  
to claim 4, wherein said predetermined angle is  $6^\circ$ .
6. (Original) The ground wave reception antenna unit according to any one of  
claims 1 to 5, wherein said planar antenna is positioned on an inner surface of a front glass or  
rear glass of a vehicle and said reflector is positioned under said planar antenna.
7. (Original) The ground wave reception antenna unit according to claim 6, wherein  
said planar antenna includes a radiating element and ground conductor positioned on the inner  
surface of the front glass or rear glass of a vehicle.

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8. (Currently Amended) A method for regulating a directional gain of a planar antenna in a ground wave reception antenna unit, said planar antenna comprising a first surface on a first side of said planar antenna, said first surface for receiving a vertical polarized wave propagating in a horizontal direction, said planar antenna being positioned inclining from a vertical direction, said method comprising the steps of:

positioning a reflector spaced from said planar antenna in at least one of a horizontal direction or inclining from the horizontal direction by a predetermined angle while spacing said reflector from said first side of said planar antenna by a predetermined distance, and

selecting said predetermined distance so that the directional gain is improved, comparing-compared to a case where said reflector is not provided.

9. (Original) The method according to claim 8, wherein said step of selecting said predetermined distance includes a step of positioning said reflector in close proximity to said planar antenna.

10. (Previously Presented) The method according to claim 8, wherein said step of selecting said predetermined distance includes selecting a predetermined distance between said planar antenna and said reflector to be an integer multiple of  $0.5\lambda$ ,  $\lambda$  being a wave length of the ground wave received by said planar antenna.

11. (Original) The method according to claim 8, wherein said predetermined angle is 0-30°.

12. (Original) The method according to claim 11, wherein said predetermined angle is 6°.

13. (Original) The method according to any one of claims 8-12, wherein said planar antenna is positioned on an inner surface of a front glass or rear glass of a vehicle.

14. (Previously Presented) The method according to claim 13, wherein said planar antenna includes a radiating element and a ground conductor positioned on the inner surface of the front glass or rear glass of a vehicle.

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15. (New) The ground wave reception antenna unit according to claim 1, wherein  
said reflector forms a reflected image of said planar antenna.